

PURCHASING REFERENCE GUIDE
FOR
Environmentally Preferable Purchasing



August 2003

Introduction

The Environmentally Preferable Purchasing Reference Guide is provided by Office of State Procurement, Department of General Administration and Department of Ecology, State of Washington.

The guide introduces and defines “environmentally preferable purchasing.” This guide does not answer every environmental question, nor addresses any possible social aspects of where and under what condition products are produced, nor any other related production hazards.

The reference guide is designed to help buyers at state agencies, colleges and universities, and political subdivisions with valuable information and resources for making purchasing decisions that are better for their employees and our environment.

Included in this guide are the basics of environmentally preferable purchasing, suggested purchasing resources and purchasing recommendations for many product groups. You will find this guide helps you make environmentally preferable buying decisions.

For further assistance please contact the Office of State Procurement at (360) 902-7400 or on the internet at <http://www.ga.wa.gov> or the Department of Ecology at (360) 407-6358, <http://www.ecy.wa.gov/>.

How will this purchasing reference guide help me?

If you are looking for ways to reduce workplace hazards, use less energy, protect natural resources or identify environmentally preferable alternatives, then this guide can help.

It is not always easy finding or deciding which product is better for our employees and environment. Every item we buy has an impact on our health and environment, no matter whether we are buying cleaning products, furniture, lights, motor oil, office supplies, paint, cars, and the list goes on.

This purchasing reference guide is a helpful resource for buyers looking for products with environmental attributes or deciding between products. Most of all, it encourages buyers to ask the right questions.

A few great reasons for using this reference guide:

- Finding hundreds of commonly used items with recycled content
- Locating resources and products to meet government purchasing requirements
- Accessing free energy engineering resources and energy audits
- Searching for unique products and the resources to help you find them
- Earning money for discarded items
- Finding plenty of helpful web links for buying, selling or disposing of items
- Saving money and stretching the budget
- Contacting experts about energy saving products and designs
- Buying refurbished products and surplus items
- Taking advantage of state contracts for the best prices and terms
- Meeting statutory competitive purchasing requirements

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Taking the Lead

Environmentally Preferable Purchasing

Reference Guide Symbols

Writing Specifications

Buying Less and Preventing Waste

Identifying Recycled Content Products

Keeping Track

Environmentally Preferable Purchasing

What is environmentally preferable purchasing?

“Environmentally preferable purchasing is choosing products that have a lesser or reduced effect on human health and the environment when compared with other products that serve the same purpose.”

Some questions to ask when comparing products include:

- Is the product less hazardous?
- Will it reduce workplace injuries?
- Is it reusable or more durable?
- Is it made from recycled materials?
- What happens to it at the end of its life?
- Can it be recycled? Will the manufacturer take it back? Is special disposal required?
- Does it conserve energy or water?
- Is it made from plant-based raw materials?

Depending upon the product, it makes sense to ask and consider several of these above questions before buying.

What are environmental attributes?

Environmental attributes are those features of a product that make it preferable to purchase over other products. Some of the environmental attributes to consider are level of recycled content, less hazardous or non-hazardous ingredients, energy saving features, water conserving features, non-petroleum based products, materials that can be recycled, and end of life disposal.

Why is environmentally preferable purchasing important?

The purchase and use of environmentally preferable products has lasting impacts. In simple terms, it means adding environmental attribute considerations to the buying decisions along with such traditional buying factors as performance, quality, service and price.

Here are some benefits:

- Buying less hazardous products improves worker safety, reduces regulatory liability, and lowers disposal costs
- Using energy-efficient and water-conserving products saves natural and financial resources
- Creating less waste by buying products that are reusable, refillable, more durable, or repairable
- Selecting recycled products keeps recycling programs going by supporting markets for the materials
- Supporting state and federal laws that support environmentally preferable purchasing

Suggested Resources

EPA web site, Environmentally Preferable Purchasing, <http://www.epa.gov/opptintr/epp/>

EPA's EPP Tool Suite, <http://www.epa.gov/opptintr/epp/tools/toolsuite.htm>

Reference Guide Symbols

This reference guide uses symbols that will help you quickly identify the most accepted environmental and health issues related to a particular product. The symbols identify the advantages that an environmentally preferable product offers compared to similar products.



Less Hazardous

Avoiding products containing hazardous chemicals reduces potential serious health risks to people and damage to the environment. As a general rule, always try to use the least amount of a hazardous product. Avoid products with the following precautionary words such Caution, Danger, Warning or Poison. Many alternative products are available that are less hazardous.



Conserves Energy

Reducing energy use is one of the simplest things we can do to curb impacts to the air we breathe and our environment. Energy production can contribute to emissions of carbon dioxide. Hydroelectric dams can degrade habitat and impede fish passage. By buying energy-efficient products, you will keep utility costs down and protect the environment. The federal Energy Star label helps buyers identify energy-efficient products.



Recycled Content

Buying products made with recycled materials save energy and resources, and keeps waste out of landfills. Recycled content products can be made with pre-consumer content, post-consumer content, or a mixture of both. Pre-consumer content utilizes materials from manufacturer's scrap. Post-consumer content utilizes materials collected from recycling programs.



Prevents Waste

Preventing waste can conserve natural resources. Our state generates millions of tons of municipal solid waste annually. You can prevent waste when you reduce the amount of material you buy to accomplish any task, buy repairable items, and find multiple uses for items.



Low Volatile Organic Compounds (VOCs)

Selecting products with low or no VOCs reduces indoor air quality hazards for employees. VOCs are chemicals that evaporate easily (volatilize) at room temperature and often have unhealthy and unpleasant vapors. They come from many products such as adhesives, carpeting, upholstery, paints, solvents, pesticides and cleaning products. Some VOCs may cause cancer, especially, when they are concentrated indoors. When VOCs hit sunlight it creates ozone, an air pollutant harmful to both people and plants. Many low-VOCs versions of products are readily available.



Conserves Water

Choosing products and services that conserve water can save money on water and sewer bills. Less than one percent of the Earth's water is available for human consumption. Dry spells and pollution remind us that our water supply can be threatened.



End of Life Management

Considering the product's end of life issues when you buy can prevent costly disposal bills. Sometimes saving money up-front on a purchase results in spending more in the long term for proper disposal or injuries related to use of a product or disposal. It also encourages manufacturers to reduce their product's environmental burden.

Writing Specifications

When putting together your bid requirements for products and services consider how environmental attributes can be included in your specifications. Taking some time before purchasing to consider environmental impacts can result in lasting benefit for people and the environment.

Here are a few strategies:

Manufacturers offer many products with environmental attributes. Ask bidders to identify those items with environmental attributes and to provide supporting details. It may take a little shopping around, but the effort is worth it. Steel, aluminum, packaging materials, plastics, fabrics, paints, and building materials all have varying degrees of recycled content. An excellent source for help is Environmental Protection Agency (EPA), which lists the required recycled content for many products.

Do not use language that would prohibit the purchase of environmentally preferable products, e.g. avoid specifications that require only new equipment or virgin materials when not necessary.

Require recycled content in products. The EPA maintains a web site that lists the required recycled content of many common products, e.g. specify the highest post-consumer recycled content that is available and meets your needs.

Require all products have a low impact to human health and environment, e.g. specify that all dyes and inks shall be safe for humans and the environment.

Specify environmental attributes such as non-toxic, recycled content, mercury-free, biodegradable, or energy efficient, e.g. a) Specify cleaning products that are biodegradable, non-toxic, and low VOCs, b) Specify federal Energy Star compliance for computers and appliances.

Give a preference to products offering the environmental attribute that you are looking for, e.g. a) Award additional points based on the level of recycled content offered. Award zero to ten extra points for bids offering no recycled content, 10 points for 30 percent recycled content, and so forth, b) Award bid using a good, better and best ranking for products and let the customer choose. This method allows for any pricing differences for environmentally preferable products to be a purchasing consideration.

Eliminate over-specification without compromising performance. Specify product qualities that are critical to performance and leave other features open to alternatives, e.g. a) Avoid overly specifying color of plastic items, as you may eliminate recycled-content items, b) Avoid specifying particular ingredients or components when alternatives exist.

Take into account the life-cycle costs of products, not just the purchase price. Consider savings on maintenance, replacement costs and disposal costs, e.g. a) Evaluation criteria for computer bids could include price, ease of upgrade, take-back provisions, warranty, and restrictions on hazardous components, b) Specify fluorescent lamp suppliers take back lamps for proper recycling, c) If packaging or containers are necessary, specify that they should be refillable, returnable, or recyclable. If possible, specify that no or bulk packaging be used.

Look for companies that have a recycling, conservation or other environmental programs, e.g. a) Require the bidder to prove evidence of their corporate environmental practices, b) Ask suppliers to track purchases of products that have environmental attributes.

Buying Less – Preventing Waste

Waste reduction is any activity that prevents waste at the point of activity. Nearly everything we do leaves behind some kind of waste, whether the waste is ordinary garbage, solid or hazardous waste, or air emissions. The better we manage what we buy and how much can go a long way towards reducing waste, saving money and the protecting the environment.

General Tips for Preventing Waste

- Find multiple uses for an item
- Reuse an item or container for other uses
- Choose repairable, refillable, and durable products
- Reduce the amount of and the toxicity of materials used
- Keep track of inventory to reduce quantity of unusable products and prevent over buying

Some specific actions you can take to prevent waste

- Look for ways to extend product life. Buy durable products. Evaluate frequently replaced items to determine if a more durable or higher-quality product is available. Examine in-house repair schedules, maintenance agreements and extended warranties
- Rent or contract for products and equipment that are infrequently used instead of buying
- Require a vendor to take-back unusable products, especially hazardous ones
- Buy cleaning and maintenance products that multiple uses
- Use efficient and low mercury fluorescent lamps. Replace old magnetic ballast with electronic ballast
- Find replacement products for toxic pesticides and chemicals that are less harmful
- Ask for products with an Energy Star rating and select the most energy efficient

Office Products

- Set up a reusable supplies area for staff, and buy new items only when necessary
- Buy rebuilt, remanufactured, or refurbished products. Specify rebuilt parts, re-inked printer ribbons, refurbished office furniture and rebuilt copy machines
- Buy erasable boards as an alternative to paper flip charts
- Buy self-stick fax addressing labels instead of printing full-size fax cover sheets
- Use electronic software presentations to reduce the use of transparencies
- Use rechargeable batteries and recycle them when spent
- Buy solar-powered calculators and other devices to eliminate the need for batteries
- Buy refillable pens, pencils, and tape dispensers
- Reuse file folders, binders, and other office supplies
- Require Laser Printers and Fax machines use recycled toner cartridges

Environmentally Preferable Purchasing Reference Guide

- Make double-sided copies to reduce paper waste and to save money. Specify copiers and printers capable of making double-sided copies. Encourage employees to use double-sided copies for draft copies. Set the default mode on all machines to double-sided output

Food Service

- Buy reusable cafeteria dishware. Reusable dishes are often cost-effective over the long term compared to disposable
- Reduce the use of single-use cups
- Allow variable portions to reduce food waste
- Consider composting or other food waste reduction options

Packaging

- Purchase products in reusable, refillable, or returnable containers
- Receive deliveries in reusable trays or totes, which can be sent back with the vendor for reuse
- Purchase products in bulk, but only in the amount you need that can be reasonably be used

Suggested Resource

EPA's Waste Wise Program <http://www.epa.gov/wastewise/>

Identifying Recycled Content Products

Purchasing recycled content products saves energy and natural resources, helps keeps waste out of landfills, and supports markets for recycled content items. "Recycled content" product or "recycled product" means a product contains some amount of recycled materials.

"Recycled materials" means waste materials and by-products that have been recovered or diverted from solid waste. These materials can be utilized in place of a raw or virgin material when manufacturing a new product.

Products can be made from materials derived from post-consumer waste, manufacturing waste, industrial scrap, and agricultural wastes. Today there are many products available with recycled content.

Finding recycled products can be easy

Many suppliers have products with recycled content. Ask suppliers for products with recycled content. Supplier can identify the percentage of recycled content for comparison purposes.

The U. S. Environmental Protection Agency publishes a helpful guide called Comprehensive Procurement Guidelines. These guidelines designate items that must contain some recycled content when purchased by federal agencies, and some state and local governments.

When preparing your bid specify minimum recycled content level that you will accept. These are minimum standards and in many cases you will be able to buy products with higher levels.

The State of Washington has a law that encourages the use of recycled content products, RCW 43.19A. The goal is to substantially increase the procurement of recycled content products by all local and state governmental agencies, and public schools. The law provides a model to encourage a comparable commitment by Washington state citizens and businesses in their purchasing practices.

EPA Comprehensive Procurement Guidelines

The following product categories have guidelines for the recycled content

- **Construction Products:** insulation, carpet, cement, fiberboard, paint, paperboard, blocks
- **Janitorial Products:** paper products, containers, industrial wipers
- **Landscaping Products:** lawn edging, garden soaker hoses, mulch, compost, plastic lumber
- **Miscellaneous:** pallets, plaques, drums, signage, sorbents, strapping
- **Non-Paper Office Products:** binders, accessories, printer ribbons, toner cartridges
- **Paper Products:** sanitary tissue, note pads, newsprint, paperboard, writing papers
- **Park and Recreation Products:** park benches, tables, fencing, playground equipment
- **Transportation Products:** delineators, parking stop, barricades, cones
- **Vehicular Products:** engine coolants, lubricating oil, retread tires

Suggested Resources

EPA Comprehensive Procurement Guidelines <http://www.epa.gov/epaoswer/non-hw/procure/>

EPA Comprehensive Procurement Guidelines fact sheets <http://www.epa.gov/cpg/factshts.htm>

Keeping Track

"Give yourself credit!"

The first step is to set environmental purchasing goals for your office, department or agency. Goals are a great way to give yourself credit for the steps you have taken to protect workers, building occupants, and the environment from harmful substances or wasteful practices.

Tracking purchases of environmentally preferable products lets you measure your accomplishments and adjust purchasing practices to meet your goals.

Some items to track is whether the products were priced competitively, readily available, and met your performance expectations. You may want to keep track of what works well and any difficulties you encountered in purchasing these products for future purchases. Suppliers can assist you in keeping track of purchases. Below is an example of a tracking form.

Environmentally Preferable Purchasing Report Card

Buyer's Name		Department		
Quarter and Year of Report		Dollar Level Goal		
Environmentally Preferable Purchases				
Order Number or Contract No.	Category Code*	Vendor	Product	Dollar Amount
			Total:	\$

*Category Codes			
U =	Used	PB =	Plant-based Products
E =	Remanufactured	LT =	Less Toxic Products
R =	Recycled Content	EE =	Energy Efficient
RE =	Repairable	WC =	Water Conserving
RP =	Recycled Content		

Purchasing Resources





Office of State Procurement

Central Stores

State Surplus

Materials Exchanges

Office of State Procurement

	Recycled Content
	Prevents Waste
	Less Hazardous
	End of life Management

The Office of State Procurement develops and administers contracts for goods and services with an estimated annual term value of approximately \$600 million and with about \$21 million of products that have environmental attributes.

The Office of State Procurement has contract coverage for thousands of products and services needed by the state government. Many of these contracted products and services are healthier and safer for people, and protect the environment. Access to these contracts is not limited to state government, through the Washington State Purchasing Cooperative; cooperative members may purchase the same products and services.

What is the Washington State Purchasing Cooperative?

The Office of State Procurement maintains the Washington State Purchasing Cooperative for the benefit of state agencies, colleges and universities, local governments, public utility districts, fire districts, and qualifying nonprofit organizations. Cooperative members can buy with the same price and terms as the state. Cooperative members can also purchase supplies and have them delivered through Central Stores. More information about membership visit: <http://www.ga.wa.gov/pca/spc.htm> or call (360) 902-7400.

Are there any environmentally preferable products available on state contracts?

Here is a sampling of some of the products currently available with the state contract number:

- **Appliances** - Energy saving refrigerators and ranges, #04699
- **Boxes & Shipping Tubes** - 25% post-consumer recycled content, #09895 & #03601
- **Cleaning Supplies** - Less toxic general cleaning and degreaser, #11399
- **Computer Paper** - 20% post-consumer recycled content, #07500
- **Copying Paper** - 30% post-consumer recycled content, #06701
- **Desk Accessories** - 25% post-consumer recycled content, #01103
- **Flooring** – Carpet and vinyl products, #06801
- **Fuel, Wood Pellets** - uses wood waste for heating, #06600
- **Kraft Bags** - 40-50% post-consumer recycled content, #09901
- **Lighting** - Energy saving products, #07400 & #00802
- **Lubricants, Re-refined Motor Oil** - 60-100% re-refined base oils, #02799
- **Office Furniture** - Remanufactured and reupholstered, #02898 & #09898
- **Paint and Supplies** - 50% post-consumer recycled paint & low VOCs paint, #12400
- **Paper Towels, Sanitary and Tissues** - 40-100% post-consumer recycled content, #03802

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- **Pencils** - 50% post-consumer recycled content, #01103
- **Plastic Trash Bags** - Minimum 15% recovered content, #07502
- **Vehicles** - Hybrid vehicles using gas and electricity to operate, #05001
- **Writing Pads, Tablets & Notepads** - 30% post-consumer recycled content, #01103

To view these state contracts go to <http://www.ga.wa.gov/purchase/> and select current state contracts look-up. Contract numbers change occasionally, so if you do not find the contract, please contact the Office of State Procurement for the current contract number.

The above referenced state contracts include products and services that have some environmentally preferable attributes. Depending on the item purchased, percentages may vary. If you have questions about the actual environmental attributes of a product, please contact the Vendor on the contract.

What are some of the benefits of using Office of State Procurement contracts?

- Gain access to thousands of products and services
- Reduce or eliminate time spent researching product specifications
- Meet statutory competitive purchasing requirements
- Simplify the selection of environmentally preferable products
- Minimize time identifying new suppliers
- Issue purchase order directly to the supplier
- Research products at suppliers' web sites
- Access contracts on-line at <http://www.ga.wa.gov/pca/supplier.htm>

Suggested Resources

Office of State Procurement, Department of General Administration, State of Washington

210 11th Street SW, Rm. 201 General Administration Building




P.O. Box 41017, Olympia, Washington 98504-1017

Telephone: (360) 902-7400

E-mail to: pcamail@ga.wa.gov

Web site: <http://www.ga.wa.gov/purchase>

Central Stores

	Recycled Content
	Prevents Waste
	Less Hazardous

Central Stores is a one-stop shopping service for government, offering thousands of products and many of them with environmental attributes. Central Stores distributes statewide.

Customers include state agencies, political subdivisions, school districts and non-profit organizations. Central Stores (or Materials Management Center) is a division of the Office of State Procurement.

What are some of the environmentally preferable products available through Central Stores?

- **Archiving Boxes** - 28% post-consumer recycled content
- **Computer Paper** - 20% post-consumer recycled content
- **Copy Paper** - 30% post-consumer recycled content
- **Envelopes** - 20% to 30% post-consumer recycled content
- **File Folder Binders** - 25 to 30 % post-consumer recycled content
- **Hanging File Folders** - 10% post-consumer recycled content
- **Incontinent Pads** - 100% post-consumer recycled content
- **Multi-use Cleaners and Degreasers** - Less toxic and safer
- **Note Pads and Tablets** - 30% post-consumer recycled content
- **Pencils** - 50% post-consumer recycled content
- **Plastic Bags** - Minimum 15% recovered content
- **Post-it Notes** - 15 to 20% post-consumer recycled content
- **Sanitary Papers** - 20 to 100 % post-consumer recycled content

For a complete listing of Environmentally Preferable Products available?

Visit Central Stores' web site at <http://www.ga.wa.gov/centralstores> and select Environmental Friendly Products. Central Stores' catalog uses a recycling symbol to indicate which products are made from recycled materials.

The above referenced items include products that have some environmentally preferable attributes. If you have questions about the actual environmental attributes of a product, please ask customer service for assistance.

What are the benefits of purchasing from Central Stores?

No minimum order requirements and free freight statewide.

Items are shipped within 24 to 48 hours of order placement.

Automated Invoicing and On-line ordering at <http://www.ga.wa.gov/centralstores>.

Customer Service at 360-902-7410 or 1-800-503-9898, or e-mail to csmail@ga.wa.gov.

State Surplus



Recycled Content



Prevents Waste



End of life Management

State Surplus sells government surplus property to state agencies, governmental entities, nonprofit organizations and the public. The State Surplus is an excellent source for many used items and a great way to stretch your budget and prevent waste.

State Surplus, division of State Services, General Administration, manages the redistribution of surplus items from both state and federal agencies.

What are some of the items for sale?

- Vehicles, all types
- Heavy Equipment
- Office Furniture & Equipment
- Electronics and Computers
- Kitchen Equipment
- Medical Equipment
- Chainsaws
- And so much more

Looking for something special? Contact Surplus at surplusMail@ga.wa.gov or call the warehouse at (253) 333-4912 and they will watch for the item.

Will State Surplus take our surplus?

State Surplus offers services to handle your surplus items, whether it is helping you to sell surplus at your location, providing allowances for trade-ins, or taking them away. For scrap computers and electronic, check Office of State Procurement state contract no. 11601, remember to use State Surplus document no. 267-A.

Can we receive money for scrap metal?

If you are considering remodeling or disposing of metal items, you may receive money for your scrap metal. To view the contract for disposal of scrap metal visit Office of State Procurement's web site <http://www.ga.wa.gov/purchase/> and for contract [#10402](#).

How do we transfer surplus or donate property?

Surplus property can be transferred from one state agency to another state agency without charge if each individual item transferred has a fair market value of less than \$500. There are three methods for donating state surplus property: [rehabilitative workshops](#), [homeless shelters](#) or [Computers 4 Kids](#). For further details on donations refer to [RCW 43.19.1919](#) and [WAC 236-48-190](#).

What about Federal Surplus Personal Property and Law Enforcement Excess Property?

The federal surplus is available to state and public agencies, including school districts and non-profit organizations that provide services in the following areas: health care, education and homeless/impooverished families and individuals. Law Enforcement Support Program, 1033 Program, transfers excess military assets to state and local law enforcement agencies. Both programs are available at State Surplus.

Where is the State Surplus Store?

The store is located at 2301 C St. SW, Auburn, WA 98001

Telephone: (253) 333-4900, or visit the web site at: <http://www.ga.wa.gov/surplus/surplus.htm>.

Materials Exchanges



Prevents Waste



End of life Management

Materials Exchanges keep usable materials out of landfills, incinerators or piling up at your facility. Exchanges promote the reuse of materials that might otherwise be thrown away. Exchanges help connect sellers and buyers for discarded items. Reusing discarded items helps conserve energy, resources and landfill space.

What are the benefits of using a Materials Exchange service?

Materials Exchanges can both save you money and earn you money. Exchanges find markets for your industrial by-products, surplus materials and waste. These services help match up available resources with people in need of them. When you find items through an Exchange they are often available at a very low cost or even free.

Exchanges help you recycle waste materials back into the manufacturing process, thus saving resources that would otherwise be spent on virgin raw materials.

Who can use a Materials Exchange?

Businesses, schools, community organizations, governments and the public can use Materials Exchanges to find users for materials they no longer want or to locate inexpensive sources of items they need.

Some of the materials you will find at an Exchange include used office furniture, flooring, building materials, pallets, textiles, industrial chemicals, paint and coatings. Check with a Materials Exchange for a complete listing of the items they promote and currently have available. Below is a list of some Material Exchanges, many more are available through an internet search.

Materials Exchanges

IMEX (Industrial Materials Exchange)

Seattle, WA

(206) 296-4899

<http://metrokc.gov/hazwaste/imex>

Alaska Materials Exchange

Anchorage, AK

(907) 269-7586

FAX (907) 269-7600

<http://www.state.ak.us/dec/dsps/compasst/ptnrshp.htm#anchor800489>

British Columbia Materials Exchange

Vancouver, British Columbia

(604) 683-6009

FAX (604) 683-7255

<http://www.rcbc.bc.ca>

CALMAX : California Integrated Waste Management Board

Sacramento, CA

(916) 341-6610

FAX (877) 520-9703

<http://www.ciwmb.ca.gov/calmax/>

Buying Products

Lighting Products

Cleaning Products

Paint Products





Integrated Pest Management - Indoors

Vehicles

Re-refined Oil Products

Car and Truck Products

Lighting Products

	Less Hazardous
	Conserves Energy
	Prevents Waste
	End of life Management

Did you know that lighting can easily account for 30% to 50% of a building's energy use? Any efforts to increase lighting efficiency will result in significant reduced energy use and expense. Equally important, better lighting improves employee productivity, safety and security, thus creating a better working environment.

Energy Saving Suggestions

- Manage the use of lighting, both the quantity and quality
- Make good use of daylight in workspaces
- Establish a retrofit or lighting replacement program for older fixtures and lamps
- Install newer energy-efficient fixtures and longer-life lamps
- Use the energy saving calculators to estimate savings
- Take advantage of the state contracts for Electrical Supplies, and Lamps and Ballasts

Retrofit

You can improve the lighting and reduce your energy use by making some changes to your current lighting.

Here are some simple suggestions and some more involved ones:

- Re-configure lighting usage to promote the use of task lighting
- Replace older fluorescent electromagnetic ballasts with electronic ballasts that improves lighting quality
- Install a combination of photo sensors and dimmer switches near windows to use natural lighting
- Upgrade to newer energy efficient fixtures
- Install longer-life lamps and save labor cost for maintenance change-outs
- Install Compact Fluorescent adaptors to retrofit incandescent fixtures
- Replace the existing EXIT sign lamps with LED's

Contact suppliers on state contracts for more suggestions and energy saving lighting options.

Contact [Facility Engineering Services](#) for consultation on energy efficiency and energy saving calculations.

Timers, Light and Occupancy Sensors

Sensors usually pay for themselves through energy savings within two to three years, although the cost varies by the type of sensors used and application. Generally, savings range from 25% to 60%, depending on location.

Use Timers in areas with regularly scheduled uses, such as perimeter lighting, hallways and garages.

Use Light sensors in areas that normally receive daylight. Lighting sensors will balance the amount of artificial lighting with natural light.

Use Occupancy sensors to turn on the lights when an area is in use. There are three basic types of occupancy sensors: motion (*ultrasonic and microwave*), heat (*infrared*), and sound sensing. They are suited best in spaces that are used infrequently, such as conference rooms, private offices, classrooms, storage areas and bathrooms.

Green Seal has information about sensors at <http://www.greenseal.org/standards/occupancysensors.htm>.

Energy-Efficient Lights

Fluorescent lights are a popular indoor light source because they last longer and cost 50% less to operate than incandescent lights. Improving lighting efficiency involves replacing less-efficient lamps, this may initially cost more, but are more efficient in the long run. Consider replace typical 1.5-inch T12 fluorescent tubes with newer 1-inch T8 tubes. T8's are 25% more efficient.

Use high-intensity discharge (HID) lights, such as high-pressure sodium lamps and metal halide lamps, they are extremely energy efficient and provide high light output over a long life. HID lamps are best suited in gymnasiums, large public areas, warehouses and outdoor activity areas. Smaller HID lamps are available for spaces such as offices with ceilings of ten feet or less, these smaller HID lamps can be installed for indirect lighting without having to remodel the ceiling.

Replace standard incandescent light bulbs with compact fluorescent lights. Compact fluorescent lights offer five times the lamp life and use a third of the energy of an incandescent bulb for the same amount of light.

Fluorescent lamps contain mercury and must be recycled. The state has a recycling contract for used lamps, contract [#11601](#), Spent Lighting Disposal and Recycling Services. Some suppliers have available recycling services, so check with them when you are purchasing new lamps.

Cash rebates are available from some electric utilities for purchasing energy efficient lighting. Before disposing of lamps check with your local refuse company about any restrictions for fluorescent and HID lamps.

Now is a good time to take advantage of the competitive priced products on state contract. Because of good pricing on the state contract for fixtures, lamps and ballasts the change over can pay for itself sooner than you think.

De-lamping

Older buildings were often designed with a higher lighting standard than what is currently needed. Modern offices do not need as much lighting, because of the use of computers and personal task lighting. A typical office needs only 40 - 45 foot candle lighting for adequate lighting.

To measure the lighting levels in your office use a light meter, and then adjust your lighting accordingly. You will most likely be able to turn off many of the lights and still provide adequate lighting.

Day lighting

Letting natural light shine into building workspaces reduces dependency on artificial lighting and is proven to help support worker productivity. Design buildings and remodeling projects to maximize the use of natural lighting.

When bringing daylight into the workspaces consider the design of floor layouts and window coverings so the daylight can be evenly distributed to the widest area.

Use light shelves at windows so the natural light is reflected into the workspace, light shelves will help draw in 20% more light into the building.

The cost of retrofitting and using daylight in areas can vary depending on the changes necessary to do it. Additional engineering and installations costs may be necessary to implement some of these measures. These costs are typically offset by the reduced cost associated with minimizing the use of artificial lighting and improved work environment.

Group Re-lamping

Re-lamping is a program where lamps and bulbs are changed-out on a regular maintenance schedule.

Advantages are:

- Saves money, time, and energy by improving overall system efficiency, reducing maintenance costs, and lowering costs through volume purchasing
- Prevents unnecessary ballast degradation from failing or failed lamps
- Re-lamp fluorescent systems at 70% of rated useful life. After 70% of useful lamp's life the burnout rate of a lamp climb steeply
- Follow a consistent replacement program to avoid scattered lamp burnouts and maintain a more consistent lighting
- Remove expired lamps as soon as possible, as they can cause a ballast to fail prematurely. A new lamp is a lot less expensive than a new ballast

The labor savings from re-lamping program will be more than made up when compared to random replacement of lamps in most situations.

End-of-Life: What to do with Spent Lamps and Ballasts?

Overall fluorescent lamps are a good choice, but they can have some environmental hazards. One of the properties that makes fluorescent lamps work is the addition of mercury. Mercury is a heavy metal with toxic properties and must be contained and properly managed at the end of life. Older fluorescent fixtures have electromagnetic ballasts, many of these ballasts have PCB's which are a hazardous waste.

Recycle fluorescent lamps and ballasts or send them to a hazardous waste facility.

The Office of State Procurement has contracts for [Hazardous Waste Disposal #07198](#) and [Spent Lighting Disposal, #11601](#).

Even the "low mercury" lamps cannot be disposed in the landfill, unless laboratory test results prove they are not designate as a hazardous waste.

Regulated hazardous waste generators should be familiar with Ecology's Fact Sheet on the [Universal Waste Rule](#) for lamps. These generators must either recycle lamps or manage them as hazardous waste.

Contact vendors on state contracts, Electrical Supplies #07400, and Lamps and Ballasts #00802, about recycling.

Recycle lamps. [Ecolights](#), they provide recycling services.

The Department of Ecology's [Demolition Debris Resources](#) web page provides more information on proper lamp disposal.

Suggested Resources

Office of State Procurement <http://www.ga.wa.gov/purchase/>

State contracts with energy saving products:

[07400, Electrical Supplies](#)

[00802, Lamps and Ballasts](#)

To view these contracts and other state contracts on lighting and electrical supplies, go to <http://www.ga.wa.gov/pca/supplier.htm> (and enter the contract number or use the keyword search), or call the Office of State Procurement at (360) 902-7400. These above contracts include products that have some environmentally preferable attributes. If you have questions about the actual environmental attributes of a product, please contact the vendor on contract.

Available Vendor Services

Ask state contract vendors for their energy efficient training, energy saving calculators and lighting audits. These resources will help you identify opportunities for increased efficiency and decreased costs for energy use.

Local Utilities

Local electric utilities may have incentive programs for installing efficient lighting, occupancy sensors and other energy control technologies.

Facility Engineering Services - GA

<http://www.ga.wa.gov/eas/epc/ESPC.htm>

Energy conservation experts at the Washington State Department of General Administration (GA) invite you to team up with GA's Facilities Engineering Services (FES) group through their Performance Contracting program. Contact FES at (360) 902-7194. Many of their services are free.

Energy Ideas Clearinghouse

<http://www.energyideas.org/>

Washington State University maintains Energy Ideas Clearinghouse (EIC); it has provided commercial and industrial sector energy information and assistance in the Pacific Northwest since 1990.

The EIC offers:

Technical assistance from Engineers or Energy Specialists (800-872-3568)

Library research from one of the nation's largest energy libraries (800-872-3568)

Federal Energy Management Program





<http://www.pnl.gov/techguide/>

The [U.S. Department of Energy's](#) (DOE) [Federal Energy Management Program](#) (FEMP) developed a guide to assist Federal agencies in meeting their energy goals. The guide has introductory information on energy efficiency and renewable energy technologies being considered for application in Federal facilities. The guide provides a starting point for evaluating technologies.

Green Seal Program

[Green Seal](#), <http://www.greenseal.org/index.html>, is an independent, non-profit organization that strives to achieve a healthier and cleaner environment by identifying and promoting products and services that cause less toxic pollution and waste, conserve resources and habitats, and minimize global warming and ozone depletion. Choose Green Report: [Compact Fluorescent Lighting](#)

Cleaning Products

	Less Hazardous
	Prevents Waste
	Low Volatile Organic Compounds (VOCs)
	End of life Management

Hazardous cleaning products are used every day in just about every building. Janitors and workers who use these products are exposed to hazards and potential injury on the job. Many cleaners contain chemicals that have harmful fumes, burn skin and eyes on contact, or create long-term health problems.

In the course of use, cleaning chemicals are washed down the drain. These chemicals run into the local wastewater system where the water is treated and discharged to a water body. Some contaminants may remain in the effluent and contribute to the pollution of our water. By using less hazardous cleaning products it helps keep our environment safe for all.

What can I do?

- **Less Hazardous:** Use less hazardous cleaning products minimize potential injury to custodial workers, maintenance staff and building occupants. Reduce the use of hazardous cleaning products can improve indoor air quality, reduce water pollution, and protect aquatic organisms
- **Prevents Waste:** Buy cleaners in concentrated form reduces packaging waste and is more cost effective
- **Low Volatile Organic Compounds (VOCs):** Select products with low VOCs reduces indoor air contamination and the creation of ozone, which is harmful to life
- **End of Life Management:** Buy less hazardous cleaners reduces your disposal costs when it comes time to properly discard of any leftover cleaners

Health and Safety

People are becoming aware of the risks of chemical use and sensitivity issues in the workplace. Repeated long-term exposure to cleaning products may cause chronic illnesses or allergic reactions.

Employers are beginning to understand the benefit of switching to safer products. The more chemicals there are on-site, the greater the risk of injury from mixing incompatible chemicals or from not using proper personal protection.

Always check the Material Safety Data Sheet (MSDS) for safety and use precautions. Central Stores has on their web site the MSDS for the products they sell, as do most manufacturers.

Chemical exposure and risk can be reduced in a number of ways:

- Switch to milder products
- Wear goggles and gloves regularly
- Reduce overall chemical use
- Reduce the variety of chemicals in use at one time
- Allow for proper ventilation

Product Use Tips:

- Use one general-purpose cleaner for most applications, rather than several different ones

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- Change cleaning practices to reduce the need to buy, handle, and store many types of cleaners
- Keep specialized product use to a minimum
- Use products with refillable containers and containers made from recycled materials
- Select pump spray containers instead of aerosols

Available Cleaning Products

Safer and environmentally preferable cleaners are becoming widely available. Ask suppliers for their safest and best environmentally preferable cleaning products.

The Office of State Procurement has environmentally preferable cleaning products available on state contract or through Central Stores. These cleaning products are general purpose cleaners. To find the products on contract [#11399](#), go to the web site for Office of State Procurement or Central Stores.

Performance Issues

Many of the safer and environmentally preferable cleaning products are as effective as traditional cleaners, but may require different cleaning techniques to be effective.

- Take time to adjust to a new products and practices of doing things
- Remember that the worker's safety and health is most important
- Require suppliers to provide training on the proper use of their products
- Do performance testing on a variety of surfaces such as floors, furniture, and walls

Cost Considerations

Many less hazardous products are competitively priced with traditional cleaners. If you buy cleaners with less hazardous chemicals, you can reduce the risk from costs associated with using and disposing of hazardous chemicals.

When making product price comparisons, figure the cost-per-application rather than the cost-per-volume. Often, products that appear to be priced higher may actually be less expensive when the full ownership cost of using them is considered.

Some of the full ownership costs of using hazardous products go way beyond the package price, such as employee safety training, complying with environmental and workplace regulations, insurance costs, legal liabilities, and disposal costs.

Specifications Development

When requesting bids for cleaning products, ask bidders to address in their bids, storage requirements, worker safety and any positive environmental attributes of their products. Since improper use can affect how well a cleaning product does its job, have suppliers provide training on the proper use of their products.

For janitorial services, specify cleaners that the janitorial service must use. Bids can specify particular products or equals, or identify performance environmental attributes.

It can be challenging to evaluate environmental attributes between different products. Some companies use in their marketing publications and product labels phrases such as "environmentally friendly" or "all natural", yet their products contain hazardous chemicals. If you are unable to sort out a manufacturer's claims, contact the Department of Ecology, they have resources available to help you.

Material Safety Data Sheets

Purchasing safe and environmentally preferable cleaners is the best thing you can do for your workers. When purchasing a cleaning product require a copy of Material Safety Data Sheet (MSDS) from the supplier. The

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MSDS contains information about the safe use and handling of the product. Always have your workers review the MSDS before using a cleaning product. Employers are required to keep MSDS near the work area.

Central Stores maintains on their web site the MSDS forms for the products they carry.

In general, avoid cleaners that:

- Have a flashpoint below 200°F (flammable)
- Contain SARA 313 Title III chemicals (known hazardous chemicals)
- Have a VOCs level above 5 percent
- Contain "chlorine," "hypochlorite," or "phosphates"
- Contain petroleum-based components
- Contain unnecessary dyes or fragrances that may cause irritation
- Use aerosol propellants as they produce a finer mist that is easily inhaled by workers

Product labels and hazardous warning symbols give you important information about the level of danger.

- Caution: mild to moderate hazard
- Warning: moderate hazard
- Danger: extremely flammable, corrosive, or highly toxic
- Poison: highly toxic

When purchasing products look for those with the lowest level of warning and consider products formulated with plant-based ingredients.

Laws and Guidelines

The State of Washington has laws for waste reduction, management of hazardous materials and purchase of environmentally preferable products.

[RCW 70.95](#) Waste Reduction, Department of Ecology is charged with reducing waste to the air, land, and water, including toxicity of waste.

[RCW 43.19](#) include goals for environmentally preferable products.

[RCW 43.19A](#) requires the state be consistent with EPA recycled content standards.

Suggested Resources

Office of State Procurement state contract [#11399, Environmentally Responsible Cleaning Products](#)

Central Stores on-line catalog, go to <http://www.ga.wa.gov/centralstores/>

Janitorial Products: Pollution Prevention Project, Lafayette, CA, 925-283-8121,
<http://www.westp2net.org/Janitorial/jp4.htm>






Find fact sheets, purchasing specifications, and other outreach materials to advise users on the health, safety, and environmental consequences of janitorial products, including cleaners.

Green Seal, Washington, DC, 202-872-6400, <http://www.greenseal.org/index.html>

Green Seal has developed a list of recommended cleaners. "Industrial and Institutional Cleaners", GS-37, it is available by contacting Green Seal at 202-872-6400 or on their web page products. Choose Green Report: General Purpose Cleaners

U.S. Environmental Protection Agency, Environmentally Preferable Purchasing Program
<http://www.epa.state.oh.us/opp/eppmain.html> Web site provides purchasing tools and success stories specific to using less hazardous products.

Paint Products

	Less Hazardous
	Recycled Content
	Prevents Waste
	Low Volatile Organic Compounds (VOCs)
	End of life Management

Millions of gallons of paint are purchased each month in our state. Employees who use or are exposed to paint products are often exposed to chemical hazards and potential injury. Many paints contain chemicals that have harmful fumes, can burn skin and eyes, or create long-term health problems.

When you are selecting paint products, try to choose those paints with least hazardous ingredients, recycled content and low VOCs. By selecting paints that are less hazardous you will help protect workers' health and the environment.

- **Less Hazardous:** Using safer paints reduces negative impacts to indoor air quality, reduces water pollution and protects aquatic organisms. Less toxic paints perform well in comparison to those that have heavy metals and other toxic chemicals
- **Recycle Content:** Painting with recycled paint does not mean a lesser quality product
- **Prevents Waste:** Buying only the amount needed for a job reduces packaging waste and storage costs
- **Low Volatile Organic Compounds (VOCs):** Using paints with a low level of VOCs helps reduce off-gassing and paint odors for worker and building occupants
- **End of Life Management:** Buying less hazardous paints can reduce your disposal costs when it comes time to properly dispose of any leftover paints

Less Hazardous Paint

It is important to read the label or speak with the manufacturer to determine whether toxic chemicals have been added to water-based paints or petroleum-based paints.

Several heavy metals and other chemicals in paint have been targeted as health risks due to their severe effects. Avoid paint products with toxic chemicals. An increasing number of safer alternative paint choices are available.

EPA: Metals and Toxic Substances to Avoid:

Heavy metals	Toxic organic substances		
Antimony	Acrolein	Formaldehyde	Naphthalene
Cadmium	Acrylonitrile	Isophorone	Phthalate esters
Hexavalent chromium	Benzene and ethylbenzene	Methyl ethyl ketone	Vinyl chloride
Lead	Butyl benzyl phthalate	Methyl isobutyl ketone	1,1,1-trichloroethane
Mercury	1,2-dichlorobenzene	Methylene chloride	Toluene

The Green Seal standard prohibits all of the above ingredients, plus: Di (2-ethylhexyl) phthalate, Di-n-butyl phthalate, Di-n-octyl phthalate, Diethyl phthalate, Dimethyl phthalate.

Low VOCs Paint

All oil and many latex-based paints contain solvents to disperse and bind other paint components. Solvents are the major ingredients that contribute to VOCs levels in paints. VOCs are any organic (hydro-carbon) compound that evaporates at normal room temperature. VOCs can cause the formation of ground-level ozone and photochemical smog, which have harmful effects on human health.

Paints that are specifically marketed as "fast drying" contain even higher levels of these solvents.

Allowable VOCs levels (G/L), (federal procurement guidelines):

Paint Type	Interior	Exterior	Anti-corrosive
Flat	50	100	250
Non-Flat	150	200	250

Types of Recycled Content Paints

There are two types of recycled-content paint: Reprocessed and Reblended. Both types of recycled paints originate from leftover latex paint collected through public and private collection programs.

- Reprocessed paint is mixed with virgin materials such as resins and colorants and is tested before resale. These paints generally contains a minimum of 20% post-consumer content.
- Reblended paint is re-mixed, screened and packaged for distribution. Virgin raw materials such as resins and colorants may be added in small quantities. Minimal testing is applied to reblended paint, typically, these paints contains anywhere from 80% to 100% post-consumer content.

Performance and Quality of Recycled Paints

High performance, durability, and low cost make recycled paint an attractive choice to architects and building owners. Always make sure you are getting the right paint and right amount for your application.

- Reprocessed paint is a high-grade recycled paint tested to meet performance and durability specifications. This product is used on various types of surfaces from gypsum wallboard to concrete surfaces. The spreading rate, hide, and durability are as good as virgin paint.
- Reblended paint is a good-grade paint often used for graffiti abatement. Color, hide, viscosity and quality vary by batch. Minimal testing is performed. Check with the vendor for information on custom tinting and type of tests performed on recycled paint.

Availability of Recycled Paints

Office of State Procurement has a paint products contract with paints that have recycled content, low VOCs and less hazardous ingredients. Ask the suppliers on the state contract for these paint products, state contract [#12400](#), Paint and Related Items.

Green Seal, a nonprofit organization sets standards for environmentally preferable paints, over 70 paint products meet Green Seal's criteria for hide ability, wear ability, scrub ability, maximum VOCs limits, prohibited heavy metals and toxic organic substances.

Cost of Recycled Paints

Recycled paint costs an average of 30% less per gallon than virgin paints of comparable quality.

The Aberdeen Proving Ground (APG) tests products for the federal government. In a recent APG study of 565 architectural paints and coatings, 13% were identified as low VOCs paints with the average cost of \$2 less per gallon. Their recommended paints from 13 manufacturers include flat, semi-gloss, and gloss finishes for interior and exterior latex paints.

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Prevent Waste

There are a number of ways to reduce paint waste:

- Carefully measure the area to be painted before buying your paint
- Talk with suppliers and read product information to determine the right amount of paint to purchase and application instructions
- Prepare surfaces properly
- Use extra left over paint on small jobs and return unopened paint containers to the supplier

End-of-Life Management

Using recycled paint minimizes environmental impacts of paint production, since the main raw material is left-over paint. Follow recommended manufacturer disposal guidelines.

Laws and Guidelines

Washington State law, [RCW 43.19A](#), follows EPA's recycled product procurement guidelines.

EPA's recommended Recovered Materials Content levels for Reprocessed and Consolidated Latex Paints:

Product Reprocessed Latex Paint	Post consumer Content (%)	Total Recovered Materials Content (%)
White, Off-White, Pastel Colors	20	20
Grey, Brown, Earthtones, and Other Dark Colors	50-99	50-99
Consolidated Latex Paint	100	100

Suggested Resources

Office of State Procurement paint contract #12400, <http://www.ga.wa.gov/purchase/>

Green Seal, <http://www.greenseal.org/cgrs/report.htm>

Kelly Moore Paint, <http://www.ecoatonline.com/home.html>

Parker Paints, <http://www.parkerpaint.com/Products.html> , look for "Klean Air" paint.

Integrated Pest Management - Indoors



Less Hazardous

Integrated Pest Management (IPM) is a coordinated decision-making and action process that uses the most appropriate pest control methods and strategies in an environmentally and economically sound manner.

Quick chemical solutions to pest problems provide only a temporary solution, which can create potential health and environmental risks. Instead of hiring someone to simply spray chemicals, consider working with an Integrated Pest Management contractor.

Contractors that practice IPM focus on preventing and controlling pests. They consider the following:

- Use and practice non-pesticide methods to prevent pest problems
- Apply pesticides only "as needed", this helps reduce the use of toxic chemicals
- Select the least hazardous pesticides effective for control of targeted pests
- Protect critical areas from pesticides where there are sensitive populations (children, infirm, and elderly) and employees

The key to the IPM service is regular inspection of buildings and grounds for conditions that might attract pests and recommending ways to deter them. If pest problems persist, the contractor will usually use the least hazardous pesticide that will effectively control or reduce the pests. IPM suppliers typically use pesticides as a last option.

IPM Performance

Practicing IPM is an environmentally sound and effective approach to pest management. Control strategies in an IPM program extend beyond the application of pesticides to include structural and procedural modifications that reduce the food, water, harborage, and access used by pests.

The success of using IPM depends on building occupants and building management. Individuals must take responsibility for keeping buildings, grounds, lunchrooms and lab rooms clean. Steps must be taken to seal cracks in foundations and find ways to prevent pests from obtaining water, food and shelter.

If contractor recommendations are not carried out, pests will continue to be a problem. Arrange for the pest control company to train employees and maintenance personnel about common pests and best pest management practices. Contractor should provide a list of easy maintenance steps that will minimize the number of pests in the building.

Components of an IPM Program

A successful IPM contractor should conduct the following activities:

- Monitor regularly for pests
- Keep a formal records system for pest levels, dates, locations, weather, and other conditions that may give rise to pests
- Determine what level of pests is acceptable and when control measures are needed
- Integrate control strategies that are effective against the pest, least disruptive to natural pest controls, and least hazardous to human health and the environment
- Designate a staff member to work with the pest control vendor and building maintenance personnel to be sure IPM recommendations are followed
- Maintain an evaluation system to determine the effectiveness of various control measures

IPM Specifications

Carefully framed specifications help eliminate selection of firms that are unable or unwilling to provide an effective IPM program. Below is a basic checklist of bid requirements:

- Resumes of service technicians or relevant subcontractors who will be on site to service the account or supply technical support
- A description of experience in the design or implementation of IPM programs (including specifics about the types of equipment and products used to control pests)
- A list of clients receiving IPM service from the company
- A description of training provided to clients
- A summary of all regulatory inspections and violations in the past three to five years and the company's response to any violations

IPM Availability

While Washington does not provide special certification for suppliers trained in IPM practices, state law does require any person applying pesticides to be licensed as a commercial pesticide applicator. Pesticide applicators are required to receive training that includes topics related to IPM. As a result, most suppliers are familiar with the concept of IPM.

Some pest management companies advertise IPM, or “ecological” pest management. Refer to “Specifications” for tips on selecting knowledgeable and experienced IPM professionals.

IPM Cost

IPM programs can further reduce costs by eliminating the practice of spraying chemicals on a regular basis. Buildings and grounds can be developed with the aim to keep pests under control. Buildings with significant problems may require start-up costs to institute an IPM program. Start-up costs may include training employees, conducting regular inspections for pests, and investing in building and landscaping improvements. Once these initial improvements have been made, an IPM program will likely reduce the overall cost of pest control.

IPM Suppliers

Pest control operators can be located using the Yellow Pages or by contacting the Washington State Department of Agriculture which can verify licensing and certification of operators in the state.

State Laws and Regulations

[RCW 17.15 Integrated Pest Management](#) It is the policy of the State of Washington to require all state agencies that have pest control responsibilities to follow the principles of Integrated Pest Management.

[Substitute Senate Bill 5533](#) – School Pesticide Use – Parental Notification. Public schools and licensed daycares are required to establish a system for notifying parents and employees of pesticides being used at the school and daycare.





Suggested Resources

For general questions about IPM, contact your local county extension office; call 800-367-5363 for a directory of phone numbers for county outreach educators.

Washington State Department of Ecology, Contact Ecology's IPM Coordinator for information on the agency's policy: (360) 407-6089 or sstr461@ecy.wa.gov. Department of Ecology's [Publications List](#): Integrated Pest Management in Schools.

[Washington State Department of Agriculture](#), 1-877-301-4555 -<http://www.wa.gov/agr>

Vehicles

	Conserves Energy
	Less Hazardous
	Prevents Waste
	End of life Management

Most people are aware that there are significant environmental impacts related to our vehicle use, but not everyone knows that vehicle emissions are the major source of air pollution today. In Washington State, the use of motor vehicles accounts for the majority (57%) of our air pollution.

Changing our driving habits is tough, but there are some things that can be done to reduce the impacts. We can purchase vehicles with better gas mileage, lower emission, and alternative fuels. Keep vehicles properly tuned and maintained. Use alternative means of transportation when feasible.

Transportation accounts for two-thirds of all the oil consumed in the U.S. Yet passenger cars today average only 24 miles to the gallon -- the lowest level since 1980.

Other impacts of transportation include extracting and processing oil and natural resources, manufacturing vehicles, and impacts on our neighborhoods and water ways from roadways.

What are some of the new types of vehicles and fuels readily available today?

- **Electric and Flexible Fueled Vehicles:** Powered by an electric motor or uses a multiple fuel types
- **Hybrid Electric Vehicles:** Combines the use of gas and electric power motors
- **Low Sulfur Diesel and Biodiesel:** Equal performance but less impact on health and the environment

Flexible Fueled Vehicles, Electric, Bi-Fuel and Hybrid Vehicles

Flexible Fuel Vehicle (FFV) has a single fuel tank, fuel system, and engine. FFV is designed to run on regular unleaded gasoline and an alcohol fuel (either ethanol or methanol) in any mixture - for example, 100% gasoline, E85 (85% ethanol, 15% gasoline), or M85 (85% methanol, 15% gasoline) or any combination of these fuels.

Electric vehicles produce the lowest tailpipe emissions and have lower operating costs than gasoline powered vehicles. However, electric vehicles have a higher purchase cost and have a limited driving range of about 40 to 100 miles. Although there are a couple of public charging stations in Washington, electric vehicles are primarily charged at home charging stations.

Bi-fuel vehicles have two separate fuel systems, with the capability to switch between systems, either system can fully power the vehicle. One fuel system is usually designed to run on gasoline or diesel. Currently, the other fuel system is usually compressed natural gas (CNG) or propane (LPG). Both propane, and to a limited degree, compressed natural gas fuels are available in Washington State.

The newest type of vehicle is a hybrid electric, combination of a gas powered engine and an electric motor. They do not have the limited range issue of a standard electric vehicle. They are designed to reduce emissions and are rated for high miles per gallon. Super-low-emission vehicles like the Prius Hybrid electric car produce at least thirty-one times fewer hydrocarbon emissions, half the carbon monoxide, and eight times less nitrogen oxide than a low emission vehicle when compared against a similar car, such as the Toyota Corolla.

How does a hybrid vehicle work?

Hybrid vehicles have both an internal combustion engine like a conventional gas vehicle, and an electric vehicle battery and electric motor. These electric hybrids get about double the gas mileage of a conventional vehicle, while reducing greenhouse gas emissions.

During normal operations, the gasoline engine is engaged and drives the wheels and/or recharges the battery. When more power is needed than can be produced by the engine (such as climbing a hill), the electric motor starts up, it draws energy from the batteries. When a driver slows down or steps on the brakes, the regenerative braking system is engaged, converting kinetic energy from the wheels into electric current to charge the batteries. At low power demands, such as when starting, stopping or at light loads, the car is typically powered by the electric motor, using the battery power.

Availability

Government agencies have been required to purchase alternative-fuel vehicles since a 1992 federal law, the Energy Policy Act (<http://www.ott.doe.gov/epact/>), required them to be part of fleet purchases.

Office of State Procurement awarded a contract for Hybrid vehicles in June 2000, at that time; Washington was the first state government in the nation to contract for hybrid-electric vehicles.

Many state agencies and jurisdictions are now using natural gas, ultra-low sulfur, biodiesel fuels and hybrid electric vehicles. Over the last three years, State and local government customers have purchased over 730 Flexible fuel vehicles, 2 natural gas vehicles and 200 hybrids off the Office of State Procurement's contracts.

Office of State Procurement has available on state contract many different manufacturers and models of Alternative Fuel, Flexible Fuel Vehicle (FFV) and Hybrid vehicles <http://www.ga.wa.gov/vehreq/vehacq.html>. The state contracts identify those vehicles that are mercury free and meet the federal Emission Certification Tier level.

Below is a sampling of some of the available alternative fuel vehicles on state contract:

Model	Type	Seating
Toyota Prius	Hybrid	Compact, 4-door sedan
Dodge Stratus	FFV	Midsize, 4-door sedan
Ford Taurus	FFV	Full size, 4-door sedan
Chevrolet Cavalier	Bi-Fuel Gas CNG	Compact, 4 door sedan
Ford Explorer (4x4)	FFV	Full size SUV
Dodge Grand Caravan	FFV	Full size 7 Passenger Mini Van
Chevrolet Silverado 1500	FFV	Regular Cab, 1/2 ton Pick-up
Chevrolet Silverado C2500	Bi-Fuel Gas CNG	Regular Cab HD 3/4 ton Pick-up

Diesel Powered Vehicles

Diesel is a fuel used typically in trucks, buses, equipment, and a smaller number of passenger automobiles. Numerous studies have shown that diesel fumes cause cancer. The particles in diesel exhaust impair the lungs and aggravate diseases like emphysema, bronchitis and asthma. For the same load and engine conditions, diesel engines emit 100 times more sooty particles than gasoline engines.

What are the alternatives to diesel?

Two diesel fuel alternatives exist which will reduce emissions to various degrees are low sulfur diesel and biodiesel. Heavy duty engines are available which use alternative fuels such as natural gas, propane and ethanol. Before using these alternative fuels check with the vehicle manufacturer for any guidelines.

Low Sulfur Diesel

The low sulfur diesel is an improvement over existing diesel technology, but it is still more polluting than alternative-fuel technologies. Sulfur contributes to the ill effects of the soot emissions, and can destroy emission-control devices. Low sulfur diesel has not been proven to sufficiently reduce the cancer risk associated with diesel emissions, nor has it been certified by any government agency. Ultra-low sulfur diesel is used by some of the transit authorities in the state and is available through the Office of State Procurement.

Biodiesel

Biodiesel is a domestically produced, renewable fuel that can be used in unmodified diesel engines. Biodiesel is derived from plant or animal fat.

Washington State legislature in 2003, passed HOUSE BILL 1242. The bill states: All state agencies are encouraged to use a fuel blend of twenty percent biodiesel and eighty percent petroleum diesel for use in diesel-powered vehicles and equipment, and biodiesel use in state-owned diesel-powered vehicles provides a means for the state to comply with the alternative fuel vehicle purchase requirements of the energy policy act of 1992, P.L. 102-486.

A number of Washington cities, universities, and school districts have used or are using biodiesel. Performance, storage requirements, and maintenance are similar for biodiesel blend fuels and petroleum diesel. It contains no aromatics or sulfur, is a good lubricant, and fleets can earn Energy Policy Act (EPA) credits for using biodiesel. It can be used in a blend with petroleum based diesel or alone.

The use of biodiesel results in substantial reduction of unburned hydrocarbons, carbon monoxide, and particulate matter compared to emissions from diesel fuel. The exhaust does not contain sulfur oxides and sulfates (major components of acid rain). Use of biodiesel reduces net CO₂ emissions by 78 percent compared to petroleum diesel. The only increase is in nitrogen oxides (NO_x) emissions, which are major contributors to smog. Because of its low sulfur content, biodiesel can be blended with diesel to reduce the fuel's overall sulfur content, or can be used with ultra-low sulfur diesel to provide necessary lubricity.

The National Biodiesel Board (NBB) maintains a list of registered fuel marketers on the biodiesel web site at www.biodiesel.org or by calling the NBB at (800) 841-5849.

Biodiesel has been thoroughly tested, and is found to perform similarly to petroleum diesel. The use of biodiesel does not void vehicle warranties. There is an ASTM standard for biodiesel, found at <http://www.astm.org>. The approval of this biodiesel standard has provided both the engine community and customers with the information needed to assure trouble free operation with biodiesel blends.

Lilyblad Petroleum, located in Tacoma, has partnered with World Energy, to be the primary biodiesel distributor in Washington. There are also a few small retail outlets selling biodiesel, including some Puget Sound marinas and one public fueling station located in north Seattle. The price premium for B20 (20% biodiesel) is about 10-20 cents/gallon, although with increasing use the price difference will lessen.

While biodiesel is not currently available throughout the state, there is some effort underway to encourage and promote the use of biodiesel and to establish a state contract. Washington State University's Energy Office has knowledgeable staff that is willing to help agencies who want to start using biodiesel.

What about Buses?

School districts and cities are looking for alternatives to diesel because of their concerns about human health and air quality. Some school districts have been successfully using a B20 (20% biodiesel blend) and ultra-low sulfur diesel in their buses.

Buses that run on compressed natural gas and propane are much cleaner and just as reliable. School districts around the country (not yet in Washington) are turning to these kinds of buses. Research on alternative fuels and technologies continues; other alternatives including battery or fuel-cell-powered buses and buses that run on a combination of fuel and batteries may be on the horizon.

Regulations

Federal Energy Policy Act of 1992 (EPAAct)

Congress passed EPAAct in 1992 with the goals of enhancing our nation's energy security and improving environmental quality. Department of Energy's overall mission is to replace 30% of petroleum-based motor fuels by the year 2010. EPAAct mandates federal and state fleets to purchase alternative fuel vehicles. For the model year 2003, EPAAct requires 75 percent of new, light duty vehicles purchased by covered state fleets to be alternative fuel vehicles.

WA State clean fuel vehicle purchase requirements

At least 30 percent of all new vehicles purchased by Washington State agencies must be clean-fuel vehicles. This percentage shall increase at the rate of 5% each year. (It is preferable that dedicated clean-fuel vehicles be purchased; in the event that dedicated clean-fuel vehicles are not available or would not meet operation requirements, conventionally powered vehicles may be converted to clean-fuel or dual fuel use. Department of General Administration – Clean-fuel vehicles -- Purchasing requirements [RCW 43.19.637](#).

TAX Incentives:

The IRS will allow up to \$2000 tax deduction for hybrid vehicles through 2003. It will be reduced 25% a year until it is phased out.

Emission Control Inspections

Electric, compressed natural gas (CNG) and liquid petroleum gas (LPG) vehicles are exempt from emission control inspections. Effective June 13, 2002, hybrid motor vehicles that obtain a rating by the U.S. Environmental Protection Agency of at least 50 miles per gallon of gas during city driving will also be exempt from these inspections. See Vehicle Licenses [RCW 46.16.015](#).

Suggested Resources

Alternative and Flexible Fuel Vehicles available on various state contracts,
<http://www.ga.wa.gov/vehreq/vehacq.html>

Washington State Energy Office – Renewable Resources Program

<http://www.energy.wsu.edu/renewables/>

Puget Sound Clean Cities Coalition (sources of biodiesel)






<http://www.cityofseattle.net/cleancities/Fueling%20Biodiesel.htm>

US Dept. Of Energy – Fuel Economy <http://www.fueleconomy.gov/feg/hybridtech.shtml>

US Environmental Protection Agency – Green Vehicle Guide

<http://www.epa.gov/autoemissions/>

Re-refined Oil Products

	Less Hazardous
	Conserves Energy
	Recycled Content
	Prevents Waste
	End of life Management

Customers wanted products that are environmentally safer without sacrificing performance or costing more. Re-refined oils, greases and fluids exceed in performance and are less or equal in price to standard products.

Currently, only 10-15% of used oil collected is re-refined - the rest is burnt as fuel. Many state and local agencies are aware that the federal government is strongly encouraging the use of products made with re-refined base oils. State of Washington purchases about 10% of the lubricants as re-refined products, which represents about 25% usage in the available applications.

Benefits of using Re-refined oil products:

- Usable in cars, trucks, tractors, forklifts, chain saws and most equipment, these oils will perform as well in the same applications as their conventional oil counterparts
- Work well in heavy-duty equipment, gas engines, and heavy-duty diesel engines converted to compressed natural gas (CNG)
- Reduces the amount of crude oil that must be found and processed
- Encourages the market to make more re-refined oil available
- Extends the life of the petroleum resources indefinitely if not contaminated
- Products with proven technology and backed by a written warrantee

When working in very sensitive environments, such as around water, consider using seed base oils such as the Pure Green 100 Fluid by Firebird.

Re-refined Lubricants

Most engine oil that is down-cycled is burned for energy recovery, but some is re-refined to be engine lubricant again. Re-refined oil is just as good as virgin oil. Laboratory testing and field studies have concluded that re-refined oil is equivalent to virgin oil and passes all prescribed tests.

The re-refining process is a lot more complex than just spinning out the water and filtering, which is referred to as recycling or reclaiming processes. Used oil is collected from service stations, lube oil change facilities, commercial and industrial locations. This oil is tested for any contaminants that would impact the finished product, then transported to a refinery designed to re-refine the oil. Re-refined oils are processed in much the same way as conventional petroleum products.

Re-refined oil have physical and chemical properties equivalent to virgin base oils and respond to additive packages in a consistent manner.

Auto manufacturers must honor warranties if oil (re-refined) has the American Petroleum Institute ([API](#)) symbol is on a product. API Certification is the basis for warranty requirements of motor vehicle manufacturers, and thus is used in specifications of motor oil buyers. The three major U.S. auto makers have issued written statements that the use of re-refined oil will not void warranties.

What products are available on state contract?

Re-refined lubricants are available on state contract [#02799 – Virgin and Re-refined Lubricants](#). Some products are less per gallon and others cost only a couple of cents more per gallon than virgin products.

Caution: Re-refined oil products are made with an amount of re-refined oil content that the formulation requirements allow. Some re-refined oils products are manufactured with 100% re-refined base oil and others are made with as little re-refined oil as can be used and still be classified as re-refined oil product, so to get the maximum benefit check the percentage of re-refined oil used.

Firebird HD Motor Oil, SAE 30, 40 and 15W-40 Re-refined universal fleet engine oil. These are premium quality, heavy-duty engine oils blended with re-refined base oil stocks. They meet the performance requirements of naturally aspirated, turbocharged, super charged diesels and gasoline engines in passenger cars and trucks.

Firebird LD Motor Oil, SAE 10W-30. Fully qualified API SH engine oil for gasoline engines. Premium quality API SL multigrade engine oil blended with greater than 50% high quality re-refined base oil stocks. Designed for passenger cars, vans, and light trucks under all operating conditions.

SAE 20W-50 grade is formulated with a special performance additive for engines operating under severe driving and/or high temperature conditions.

Firebird 5005 GEO, SAE 15W-40, Re-refined low ash natural gas engine oil. Designed for Compressed Natural Gas (CNG) engines. High quality, low ash, dispersant/detergent gas engine oil designed for four-stroke cycle and selected two-stroke cycle engines. Has the low phosphorous and zinc levels needed for full performance and full catalyst life of emission controlled catalytic converters. It meets the requirements of API CD.

Firebird AW Oil, Hydraulic Oil ISO VG 32, 46, and 68. Re-refined antiwear hydraulic oil. Premium quality, antiwear hydraulic fluid blended with 100% high quality re-refined base oil stocks. Designed for use in all types of high pressure, high speed hydraulic pumps used in industrial, mobile, and marine hydraulic systems. Well suited for highly accurate machine tool and industrial robot hydraulic systems.

Firebird Multipurpose Grease, Re-refined base oil multipurpose grease. Premium quality, multipurpose extreme pressure grease designed for use in a wide variety of automotive and industrial applications. Lithium complex soap grease formulated with high quality virgin and re-refined paraffinic base oils. Selected additives provide extreme pressure and antiwear properties as well as good resistance to oxidation and corrosion. Meets NLGI GC-LB requirements.

Firebird Tractor Hydraulic Fluid Re-refined transmission / final drive / hydraulic fluid for tractors. Premium quality transmission fluid blended with greater than 50% high quality re-refined base stocks. Designed for use in transmissions, final drives, and hydraulic systems of all major brands of tractors and other farm equipment employing a common fluid reservoir. Has excellent antiwear properties and may be used in other hydraulic systems where good performance over a wide temperature range is required.

Pure Green 100 Fluid Biodegradable multipurpose lubricant, soy base oil for Bar and Chair Saw fluid. 76 Pure Green 100 Fluid is readily biodegradable, seed oil-based multipurpose lubricant for "once-through" applications. It is a tacky, rust-inhibited, ashless fluid with excellent natural lubricity and a high viscosity index for service over a wide temperature range. It is nontoxic to freshwater and marine organisms. This product is recommended for use in once-through applications where the lubricant might enter the environment causing a risk of soil or water contamination.

How often should the oil be changed?

Analyze your fleet and determine if you can reduce the frequency of oil changes. Fleet managers keep their vehicles on a regular maintenance schedule for safety and to keep the vehicle operating efficiently. Managers and vehicle owners may save money and oil by increasing the number of miles between oil changes.

Oil changes at 3,000 miles are common, but, depending on the vehicles, how it is maintained and how it is driven, you may be able to extend the time between oil changes. Most of the major auto manufacturers recommend changes at between 5,000 – 7,500 miles.

Environmentally Preferable Purchasing Reference Guide

It is proven safe to extend time between changes because oil does not break down and lose lubricating ability, but rather it gets dirty and uses up the additives. It is much more important that oil levels be checked and maintained more frequently if there is a longer interval between services.

Laws and Guidance

RCW 43.19A: requires the state be consistent with US EPA recycled content standards, that includes lubricating oils, with a 10% bid preference for recycled content. EPA recommends that agencies set their minimum re-refined oil content standard at the highest level they can, but no lower than 25 percent re-refined oil.

If you maintain your own fleet, make sure that you are following state and local regulations regarding the proper handling and recycling of used motor oil and other vehicular products. The Department of Ecology has an on-line database to help you determine where to take your used oil:

1-800 RECYCLE Online <http://1800recycle.wa.gov/> or call 1-800-732-9353.

Suggested Resources

Office of State Procurement, Re-refined lubricants state contract #02799 – Virgin and Re-refined Lubricants

Conoco-Phillips, 76 Lubricants Company <http://www.76lubricants.com/> or Call 1 800-435-7761

American Petroleum Institute, http://api-ec.api.org/intro/index_noflash.htm






Automaker Endorsement Letters (for using re-refined), <http://www.ac-rerefined.com/html/endorsements.html>

EPA's Comprehensive Procurement Guidelines: Re-Refined Lubricating Oil <http://www.epa.gov/epaoswer/non-hw/procure/products/lubricat.htm>

Motor Oil, Re-refined: <http://www.metrokc.gov/procure/green/oil.htm>

America's Choice: <http://www.ac-rerefined.com/html/endorsements.html>

Car and Truck Products

	Less Hazardous
	Conserves Energy
	Recycled Content
	Prevents Waste
	End of life Management

Buying recycled products for your vehicles can take you a long way down the road toward protecting the environment and saving resources. Whether you are a fleet manager or responsible for only one vehicle there are recycled products that work.

Studies and experience show that these products can meet or exceed your quality standards. What's more, buying recycled can cut your expenses while reducing solid waste and providing markets for recyclable materials collected nationwide.

Available Products: Cost effective, reliable, and high-quality recycled content vehicular products, such as retread tires and recycled engine coolants, are being used with success by many government agencies nationwide.

Retread Tires

RETREADING IS RECYCLING!

Every time you buy and use a retread tire, you help to conserve our valuable natural resources. Retread tires are always less expensive than comparable new tires, so you will save money while helping the environment.

For most fleets, tires represent the third largest item in their operating budget, right after labor and fuel costs. The lowest possible cost-per-mile is achieved with a good tire management program that includes the use of quality retreads.

Retreads are not only cost effective, but they are also dependable, reliable and safe. Retreads are widely used by trucking companies, small package delivery companies, commercial and military jets, and school bus operators. Retreads are the replacement tire of choice for most truckers. Of the nearly 33.8 million replacement tires purchased by fleets in 2000, over 18 million were retread or about 54 percent of the tires purchased.

Retreads help to conserve natural resources. It takes 22 gallons of oil to manufacture one new truck tire, compared with only 7 gallons of oil to produce a retread.

When the time comes to replace tires, evaluate high-mileage and retread tires to see if they meet your need. Purchasing retread tires "closes the loop" on recycling.

Is it is safe to use Retreads?

Retread tires must meet standards developed by the U.S. Department of Transportation (DOT). Properly maintained tires, whether new or re-treaded, do not cause accidents. Statistics compiled by DOT show that nearly all tires involved in any tire related accidents are under inflated or bald.

According to the [Tire Retread Information Bureau](#), there is no significant difference in quality between retread tires and new tires.

Tire-related accidents are caused primarily from under-inflated or bald tires. Rubber on the road comes from both new and retread tires, primarily a result of improperly maintained truck tires.

Why is it environmentally sound to use Retreads?

- Keeps tires out of landfill, incinerators or tire piles
- Less energy and resource are used to retread tires
- Each year, retread tires save more than 400 million gallons of oil in North America
- Many tires can be repeatedly retreaded, avoiding the disposal costs of the tires

Why is it financially sound to buy Retreads?

- Retreads can cost 30 to 50 percent less than the cost of purchasing new tires
- They make the most sense for use on trucks and heavy equipment
- Over 30 million tires are retread each year, representing sales of over \$2 billion and savings of millions

Retreads Availability

The Office of State Procurement does not currently have retread tires on contract, but they are available from the suppliers that are on the state tire contract, [#14900](#).

Laws and Guidance

[RCW 43.19A](#): requires the state be consistent with US EPA recycled content standards, which includes retread or remanufactured tires, with a 10% bid preference for recycled content. EPA's Comprehensive Procurement Guidelines recommended that agency's "purchase retread tires or tire re-treading services for vehicular tires to the maximum extent possible".

EPA recommends that procuring agencies specify that retread tires must meet the requirements of Federal Specification ZZ-T-381, "Tires, Pneumatic, Vehicular (Highway) (New and Re-treaded)," and be listed on General Service Administrations' Qualified Products List QPL-ZZ-T-381.

Engine Coolants – Recycled Antifreeze

Recycled coolant can cost less than new coolant, if you select the right recycling process for your shop. When you buy new coolant, compare its cost and disposal costs with the cost of onsite or offsite recycling of coolant.

Testing shows recycled coolant meets nationally recognized performance specifications for new coolant, such as those established by the American Society for Testing and Materials (ASTM) and the Society of Automotive Engineers.

Coolant recyclers have worked with automotive and truck engine original equipment manufacturers (OEMs) to get their approval on coolant recycling processes. Check with your recycler for a list of OEM approvals.

Benefits of Recycling Antifreeze?

Antifreeze contains the toxic chemical ethylene glycol, so it cannot be drained on the ground, septic, or into a sewer, it must be collected. If it is properly recycled, then it is exempt from the hazardous waste management rules.

If used antifreeze is recycled, it doesn't need to be counted or manifested as a hazardous waste. If used antifreeze is otherwise disposed, it is subject to full regulation, including counting unless the generator can document that the antifreeze is not hazardous. Keep records of the recycling activity. Never dispose of used coolant to the drain or sewer.

Extended-Life Antifreeze

Extended-Life antifreeze lasts longer than conventional antifreeze. The service life of antifreeze is limited by the protection ability of the corrosion inhibitors. Extended-life coolants have been shown to retain over 95% of their corrosion inhibitors after five years/150,000 miles in automobiles. Most extended-life coolants do not contain silicates and phosphates, common in conventional antifreeze, which tend to be abrasive to water pump seals. Some shops are switching their fleets to extended-life antifreeze, which greatly reduces the need to purchase new antifreeze and recycled used antifreeze. Many newer vehicles, including cars, light trucks, and heavy-duty diesel trucks, are now factory-filled with extended-life antifreeze.

Recycled Antifreeze Recommendation

EPA does not recommend one type of engine coolant over another, but recommends that engine coolant containing only one base chemical, typically ethylene glycol or propylene glycol, to prevent the commingling of incompatible types of engine coolant.

General Motors (GM) endorses several coolant recycling systems and states that the engine warranty will be unaffected if engine coolant recycling is performed as described by the manufacturer and with GM-approved recycling equipment.

Ford Motors expressly authorizes the use of certain engine coolant recycling processes and chemicals that meet its specifications. Chrysler allows any coolant to be used as long as it meets Chrysler's and ASTM's specifications. Check with your vehicle manufacturer or dealer to see which coolant recycling equipment or process is best to use.

Recycled Antifreeze Availability

You can help the environment and save natural resources by requesting recycled or extended life antifreeze when servicing. If you service your own fleet, purchase and use recycled or extended life antifreeze, or reclaim and reuse on site. Recycled coolant might cost less than new if you select the right recycling process for your shop.

Laws and Guidance

[RCW 43.19A](#): requires the state be consistent with federal EPA recycled content standards. EPA's Comprehensive Procurement Guidelines recommended that agency's "reclaim engine coolants on site or contract for offsite reclamation services."

Suggested Resources

Office of State Procurement tire contract [#14900](#), visit <http://www.ga.wa.gov/purchase/>

Retread Tire Information Bureau, <http://www.retread.org/>

EPA's Comprehensive Procurement Guidelines: Retread Tires

<http://www.epa.gov/epaoswer/non-hw/procure/products/retread.htm>

EPA's 2000 Buy Recycled Series – Vehicular Products

<http://www.epa.gov/epaoswer/non-hw/procure/pdf/vehi-00.pdf>

EPA's Comprehensive Procurement Guidelines – Engine Coolant, <http://www.epa.gov/cpg/products/engine.htm>

Automotive Service Equipment – Antifreeze recycler, <http://www.asedeals.com/ARU2.html>

Recyclers World – Advanced Antifreeze Recycling, <http://www.recycle.net/trade/aa027901.html>

Antifreeze Recyclers of America, 919-530-1341